## Contents

Preface ......................................................... v
Contributors .................................................. ix

1 Introduction to Notch Signaling ............................. 1
   Shinya Yamamoto, Karen L. Schulze, and Hugo J. Bellen

2 Genetic Screens to Identify New Notch Pathway Mutants in *Drosophila* ............ 15
   Nikolaos Giagtzoglou

3 Structure-Function Analysis of *Drosophila* Notch Using Genomic Rescue Transgenes ............................................. 29
   Jessica Leonardi and Hamed Jafar-Nejad

4 Overview of Genetic Tools and Techniques to Study Notch Signaling in Mice .......... 47
   Thomas Gridley and Andrew K. Groves

5 Immunohistochemical Tools and Techniques to Visualize Notch in *Drosophila melanogaster* ........................................... 63
   Emiliana Tognon and Thomas Vaccari

6 Antibody Uptake Assay and In Vivo Imaging to Study Intracellular Trafficking of Notch and Delta in *Drosophila* ............. 79
   Lydie Couturier and François Schweiguth

7 Tracking Trafficking of Notch and Its Ligands in Mammalian Cells .................. 87
   Patricia Chastagner and Christel Brou

8 Visualizing Notch Signaling In Vivo in *Drosophila* Tissues ......................... 101
   Benjamin E. Housden, Jinghua Li, and Sarah J. Bray

9 Monitoring Notch Activity in the Mouse ......................................... 115
   Swananda Marathe and Lavinia Alberi

10 Notch Signaling Assays in *Drosophila* Cultured Cell Lines ......................... 131
   Jinghua Li, Benjamin E. Housden, and Sarah J. Bray

11 Monitoring Notch Activation in Cultured Mammalian Cells: Transcriptional Reporter Assays ........................................... 143
   Ma. Xenia G. Ilagan and Raphael Kopan

12 Monitoring Notch Activation in Cultured Mammalian Cells: Luciferase Complementation Imaging Assays .......................... 155
   Ma. Xenia G. Ilagan and Raphael Kopan

13 Visualization of Notch Signaling Oscillation in Cells and Tissues .................. 169
   Hiromi Shimojo, Yukiko Harima, and Ryoichiro Kageyama

14 Proteomic Analysis of the Notch Interactome ...................................... 181
   K.G. Gurubarsba, Kazuya Hori, Robert A. Obar, and Spyros Artavanis-Tsakonas
15 Bacterial Expression and In Vitro Refolding of Limited Fragments of the Notch Receptor and Its Ligands
Pat Whiteman, Christina Redfield, and Penny A. Handford
193
16 Analyzing the Posttranslational Modification Status of Notch Using Mass Spectrometry
Shinako Kakuda and Robert S. Haltiwanger
209
17 Assay to Probe Proteolytic Processing of Notch by γ-Secretase
Lutgarde Serneels, Ina Tesseur, and Bart De Strooper
223
18 Analyzing the Nuclear Complexes of Notch Signaling by Electrophoretic Mobility Shift Assay
Kelly L. Arnett and Stephen C. Blacklow
231
19 Identifying Direct Notch Transcriptional Targets Using the GSI-Washout Assay
Will Bailis, Yumi Yashiro-Ohtani, and Warren S. Pear
247
20 Probing the Epigenetic Status at Notch Target Genes
Robert Liefke and Tilman Borggrefe
255
21 Notch-Ligand Binding Assays in Drosophila Cells
Aiguo Xu and Kenneth D. Irvine
277
22 Modeling Notch Signaling: A Practical Tutorial
Pau Formosa-Jordan and David Sprinzak
285
23 Small Molecules That Inhibit Notch Signaling
Gerdien E. De Kloe and Bart De Strooper
311
24 Application and Evaluation of Anti-Notch Antibodies to Modulate Notch Signaling
Wendy R. Gordon and Jon C. Aster
323
25 Application of Anti-ligand Antibodies to Inhibit Notch Signaling
Jun-ichiro Koga and Masanori Aikawa
335
Index
343
Notch Signaling
Methods and Protocols
Bellen, H.J.; Yamamoto, S. (Eds.)
2014, XI, 351 p. 59 illus., 46 illus. in color., Hardcover
ISBN: 978-1-4939-1138-7
A product of Humana Press